

Appl. No. 10/712,436
Amdt. dated November 17, 2004
Reply to Office action of October 19, 2004

Docket No. 58298-011501

AMENDMENTS TO THE CLAIMS

Claim 1. (withdrawn) A marking template for assisting drilling holes into a femur of a patient, comprising:

- a top surface;
- a bottom surface;
- the bottom surface substantially formed to match a distal end of a femur; and
- an opening through the top and bottom surfaces adapted to guide a drill at a predetermined location along the distal end of the femur.

Claim 2. (withdrawn) A system for installing a replacement device to a distal end of a femur having a trochlear groove surface, comprising: a marking template, wherein:

- the marking template has a back side substantially matching the distal end of a femur;
- and
- a hole through the marking template;
- a drilling apparatus to form an opening on the distal end of the femur 5-assisted by the hole in the marking template; and
- a replacement device, wherein:
 - the replacement device has a bottom side substantially matching the distal end of the femur; and
 - a pin protruding from the bottom side of the replacement device 10 adapted to insert into the opening on the distal end of the femur.

Claim 3. (withdrawn) A system according to Claim 2, wherein the replacement device has a top side substantially tracking a trochlear groove of the femur.

Claim 4. (withdrawn) A system according to Claim 2, further including a cement between the replacement device and the femur to bond the replacement device to the distal end of the femur.

Claim 5. (withdrawn) A system according to Claim 2, further including a bone ingrowth surface between the replacement device and the femur to bond the replacement device to the distal end of the femur.

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Claim 6. (original) A method of making a replacement device, comprising the steps of:

- forming a model of a distal end of a patient's femur;
- forming a first mold from the model, wherein the first mold has a bottom side that substantially matches the trochlear groove of the patient's femur, wherein the first mold has a top side opposite of the bottom side;
- coupling a peg on a predetermined location on the bottom side of the first mold;
- shaping the top side of the mold to substantially track the trochlear groove of the patient's femur;
- forming a second mold from the first mold; and
- pouring viscous material into the second mold to make a replacement device.

Claim 7. (original) A method according to Claim 6, further comprising the steps of:

- streamlining the edges of the replacement device.

Claim 8. (original) A method according to Claim 6, further comprising the steps of:

- shaping the replacement device to have an oval shape defined by first, second, third, and fourth boundary conditions, wherein:
 - the first boundary condition being approximately 3 mm to 5 mm from the attachment of an anterior cruciate ligament to the femur;
 - the second boundary condition being approximately at least near the superior edge of an end of a natural cartilage of the femur;
 - the third boundary condition being approximately at the top ridge of a right condyle of the femur; and
 - the fourth boundary condition being approximately at the top ridge of a left condyle of the femur.

Claim 9. (original) A method according to Claim 6, further comprising the steps of:

- shaping the top surface of the replacement device to have a substantially similar thickness between the top and bottom surfaces, wherein the thickness is approximately between 2 mm and 6 mm.

Claim 10. (original) A method according to Claim 6, further including the steps of:

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taking a predetermined number of sliced images along the distal end of a patient's femur;
transposing each of the predetermined number of sliced images into a plate;
cutting the sliced images from each of the plates;
assembling each of the plates to define outer edges of the distal end of the femur; and
applying filler over the outer edges to form the model of the distal end of the femur.

Claim 11. (currently amended) A method of forming a replacement device and a marking template device from a single mold, comprising the steps of:

- forming a model of patient's distal end of a femur;
- forming a first mold from the model, wherein the first mold has a back ~~10~~-side that matches the trochlear groove of the femur, wherein the first mold has a face side opposite of the back side;
- shaping the face side of the first mold to substantially track the trochlear groove of the femur;
- forming a second mold from the first mold; and
- pouring a first viscous material into the second mold to make a replacement device.

Claim 12. (original) A method according to Claim 11, further including the steps of:

- coupling a peg to the back side of the first mold at a predetermined ~~20~~ location;
- removing the peg from the back side of the first mold;
- forming a third mold from the first mold without the peg on the back side; and
- pouring a second viscous material into the third mold to make a marking ~~25~~ template.

Claim 13. (original) A method according to Claim 11, further including the steps of:

- forming an opening through the first mold along the predetermined location.

Claim 14. (original) A method according to Claim 11, wherein the first viscous material and second viscous material is the same material.

Claim 15. (currently amended) A method according to Claim 11, wherein the step for forming the model of patients distal end of the femur further includes the steps of:

- compiling in a computer a CT image data of the patient's distal end of the femur;

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creating a surface of the patients distal end of the femur; and
driving a computer assisted machine system to machine the model of ~~10~~ patient's distal end of the femur.

Claim 16. (withdrawn) A method of installing a replacement device to the trochlear groove of a patient's femur, comprising the steps of:

providing a replacement device having a bottom side that substantially 15-matches the trochlear groove of a patient's femur, wherein the bottom side of the replacement device has a pin at a predetermined location;
providing a marking template having a back side that substantially matches the trochlear groove of the patient's femur, wherein the marking template has an opening corresponding to the predetermined location of the pin;
removing the cartilage from the distal end of the femur;
positioning the marking template about the femur substantially similar to the desired installed position of the replacement device;
drilling a hole on the distal end of the femur though the opening of the marking template;
removing the marking template from the femur; and
inserting the pin of the replacement device into the hole of the femur to install the replacement device on the desired location of the femur.

Claim 17. (withdrawn) A method according to Claim 16, wherein the replacement device has a plurality of pins, wherein the replacement device has a plurality of holes corresponding to the plurality of pins.

Claim 18. (withdrawn) A method according to Claim 17, further including the steps of:
bonding the replacement device to the femur by applying adhesive between the two.

Claim 19. (withdrawn) A method according to Claim 17, further including the steps of
bonding the replacement device to the femur by utilizing a bone ingrowth surface.